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EXAMINER	
EMPIE, NATHAN H	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/598,181	VATANEN ET AL.	
	Examiner	Art Unit	
	NATHAN H. EMPIE	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 December 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11 and 13-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11, 13-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/7/09*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Examiner acknowledges receipt of 12/3/09 amendment to the claims which was entered into the file. Claims 11 and 13-23 are currently pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 19, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al (JP 06-142590; hereafter Nakamura) in view of Arai (JP 05-104062; hereafter Arai), Chino et al (US patent 4,937,093; hereafter Chino), and Kondo et al (US patent 6,248,406; hereafter Kondo).

Claim 19: Nakamura teaches a method of coating a paper web of a selected width with plane-fed curtain coater, comprising a cross machine direction extending nozzle beam provided with at least a first feed chamber (not numbered) and a first nozzle feed slot (such as 8d) connected to the first feed chamber, and a second feed chamber and a second feed slot (such as 8c) connected to the second feed chamber (see, for example, abstract, [0017-0022], fig 1 and fig 2), comprising;

feeding a first layer of first coating material from the first nozzle feed slot on top of a flow plane (9) defined by the nozzle beam, and flowing the first layer in a machine direction along the flow plane to the feed lip (see, for example, Fig 2),

feeding a second layer of second coating material from the second nozzle feed slot on top of the flow plane defined by the nozzle beam, and flowing the second layer of in the machine direction along the flow plane over the fist layer and to the feed lip (see, for example, Fig 2),

determining the thickness of at least one of the first or second layers of coating material on top of the flow plane downstream of the first or second nozzle feed slot (see, for example, Fig 1, and [0020-0023])

controlling a first/second feed rate of the first/second coating material from the first/second feed chamber to the first/second nozzle feed slot on the basis of the determined thickness of respectively the first / second layer of coating material to achieve a selected thickness for at least one of first or second coating material (see, for example, Fig 1-5, and [0020-0027], wherein the collected data from the thickness measuring means (20) is output to the control means (42) which based on thickness fluctuation values from (20) the coating liquid amount of each coating liquid is calculated and the coating liquid feeding means is appropriately adjusted).

The thickness monitoring device of Nakamura is taught to be movable in both width and longitudinal directions to gather coating thickness information across the coating die surface (see, for example, Fig 1 and Fig 3, and [0020-0023]). But Nakamura does not explicitly teach wherein the thickness data collected is a cross machine direction thickness profile. Arai teaches a method of applying a continuous coating onto a web material wherein the thickness is measured and a feedback mechanism is present to correct for deviations in thickness (See, for example, abstract,

and Fig 1-4). Arai teaches that it is well known in the art that deviations in coating thickness in a cross machine direction occur and that overall coating uniformity and functionality can be improved by monitoring such cross machine direction thickness profiles (see, for example, [0009-0052], Fig 1-2). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have determined a cross machine direction thickness profile as the thickness data gathered and based on controlling in the method of Nakamura as such data would provide form more uniform surfaces/ resulting properties and greater control over the deposited film.

Nakamura has explicitly taught that the feeding of each separate coating material is controlled based on the feedback loop from the thickness measurements (Fig 1-5, and [0020-0027]) but they do not explicitly teach wherein a cross machine direction thickness profile of each coating layer is determined and used as the basis for control of each coating feed rate and ultimate thickness. Chino teaches a method of applying a plurality of layers to a continuously running web substrate (see, for example, Fig 1, abstract). Chino further teaches that it is known and desirable in the art to control the thickness of each coating within a coating stack of a multilayered coating, and that it is desirable to monitor and determine the coating thickness of each layer of the multilayer to ensure proper film properties (see, for example, col 1 line 1 - col 2 line 50). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have determined a cross machine direction thickness profile for each layer of the coating as the thickness data gathered and based on to control the thickness and feed rate of each layer of the coating in the method of Nakamura in view of Arai as such data

would provide form more uniform surfaces and subsurfaces resulting in more predictable layer properties and greater control over the deposited film.

Nakamura does not explicitly teach the step of trickling the plurality of superpositioned layers from the feeding lip of the nozzle beam in the form of a coating curtain onto the surface of the web. Kondo further teaches that it is well known in the art for coating dies comprising a plurality of feed slots to flow a plurality of coating layers down a nozzle beam to form a coating curtain that is tricked from the die feed lip onto a the surface of a web (See, for example, Fig 1). As dies similar to those taught by Nakamura in view of Arai, and Chino are known in the art to predictably deposit multilayered coatings onto webs by trickling a plurality of superpositioned layers from the feeding lip as a curtain, it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated the method of Nakamura in view of Arai, Chino, with Kondo, as such an incorporation would provide for enhanced regulation of multilayered coatings applied as trickled curtain coated layers from multislot dies.

Claim 21: Nakamura in view of Arai, Chino, and Kondo teach the method of claim 19 directed to determining the cross machine direction thickness of each of said plurality of layers (described above) wherein Nakamura further teaches that thickness measurements obtained by at least one sensor making a non-contact measurement of thickness (see, for example, via a light interference method, [0029-0034], Fig 6-12).

Claim 22: Nakamura in view of Arai, Chino, and Kondo teach the method of claim 21 (described above) wherein Nakamura has taught moving at least one sensor in a cross machine direction along a nozzle beam corresponding to the flow plane (see, for

example, for example, Fig 1 and Fig 3, and [0020-0023]) and wherein Arai has taught where along such movement a cross machine thickness profile can be gathered, essentially across the entire width (see, for example, Fig 1, [0047]).

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Arai, Chino, and Kondo as applied to claim 19 above, and further in view of Kustermann (US patent 6,248,174; hereafter Kustermann).

Claim 20: Nakamura in view of Arai, Chino, and Kondo have taught the method of claim 19 (described above) but none explicitly teach wherein the step of controlling further comprises increasing or decreasing a by-pass flow of the coating material through the first / second feed chamber. Kustermann teaches a method of applying a coating onto a continuous web from a nozzle slot coater (see, for example, abstract, and Fig 1). Kustermann further teaches that a feed chamber (distribution channel (24) can comprise a by-pass flow (flow through exit discharge opening (32)) to ensure the coating medium is moving in the distribution channel and as a predictable means of regulating and varying the amount of coating material being distributed to the web (See, for example, col 4 lines 9-22, and col 5 lines 15 - 35). As both Kustermann and Nakamura in view of Arai, Chino, and Kondo have taught methods of regulating the flow of coating in a continuous deposition process it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated increasing or decreasing a bypass flow of the coating material through each respective feed chamber in the method of Nakamura in view of Arai, Chino, and Kondo in order to achieve the

predictable result of regulating the flow of each of the layers of the coating material and additionally ensuring that each of the layers of coating medium is moving in each of the distribution channels (feed chambers).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Arai, Chino, and Kondo as applied to claim 19 above, and further in view of Yapel et al (US patent 5,837,324; hereafter Yapel).

Claim 23: Nakamura in view of Arai, Chino, and Kondo have taught the method of claim 19 involving the step of determining the cross machine direction thickness profile of each layer of a multilayer coating as it flows in the machine direction along the flow plane (described above) and Kondo further teaches a continuous curtain coating method onto a moving web (See, for example, abstract, Fig 1) and that maintaining a uniform evenness along the lateral coating direction is a well known concern in the prior art that deviations in coating thickness can be linked to deviations in flow speed (See, for example, col 1 line 25- col 2 line 45). Kondo further teaches that it is well known in the art to measure surface speed of a flowing coating along its width to monitor the coating flow properties and lateral thickness uniformity (see, for example, col 7 lines 1 - 65) but none explicitly teach accomplishing the determination of cross machine direction thickness profile by measuring the surface speed of the layer of coating material. Yapel teaches a continuous coating method (die / slide /curtain) onto moving substrates (see, for example, abstract, col 1 lines 1 - 15). Yapel further teaches that it is well known in the art to collect thickness profiles (depth profiles), and further teaches wherein both

devices as well as analytical or numerical methods, such as using fluid flow modeling such as FIDAP or NEKTON, are well known in the art and predictable methods of obtaining thickness profiles (see, for example, col 9 line 60 - col 10 line 13). As Nakamura in view of Arai, Chino, and Kondo and Yapel teach methods of measuring and controlling coating thickness in slot fed curtain coating methods, it would have been obvious to one of ordinary skill in the art at the time of invention to substitute one method for the other (determining the cross machine direction thickness profile by measuring a surface speed of a coating layer followed by analytical / numerical manipulation) to achieve the predictable result of determining the cross machine direction thickness profile.

Claims 11, 14, 15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al (JP 06-142590; hereafter Nakamura) in view of Arai (JP 05-104062; hereafter Arai), Chino et al (US patent 4,937,093; hereafter Chino), Okada et al. (JP 2000-343017; hereafter Okada),and Kondo et al (US patent 6,248,406; hereafter Kondo).

Claims 11 and 17: Nakamura teaches a method of coating a paper web of a selected width with plane-fed curtain coater (see, for example, Fig 1 and 2 and abstract), comprising a cross machine direction extending nozzle beam provided with at least a first feed chamber (not numbered) and a first nozzle feed slot (such as 8d) connected to the first feed chamber, and a second feed chamber and a second feed slot

(such as 8c) connected to the second feed chamber (see, for example, abstract, [0017-0022], fig 1 and fig 2), comprising;

feeding plurality of layers of coating material from nozzle feed slots on top of a flow plane (9) defined by the nozzle beam, and flowing the layers in a machine direction (see, for example, Fig 2),wherein each of the plurality of layers extends in a cross machine direction and is fed form a feed chamber and each layer is fed onto the flow plane through a corresponding nozzle feed slot, the flow plane being established by a cross machine direction extending nozzle beam so that the plurality of layers form a plurality of superpositioned layers (see, for example, Fig 2 and Fig 1).

flowing the plurality of superpositioned layers of coating material in a machine direction along the flow plane to a feed lip (see, for example, Fig 2).

determining the thickness of coating material on top of the flow plane downstream of nozzle feed slots (see, for example, Fig 1, and [0020-0023])

controlling a feed rate of the coating material from the feed chamber to a nozzle feed slot on the basis of the determined thickness of the coating material to achieve a selected thickness for at least one of first or second coating material (see, for example, Fig 1-5, and [0020-0027], wherein the collected data from the thickness measuring means (20) is output to the control means (42) which based on thickness fluctuation values from (20) the coating liquid amount of each coating liquid is calculated and the coating liquid feeding means is appropriately adjusted).

The thickness monitoring device of Nakamura is taught to be movable in both width and longitudinal directions to gather coating thickness information across the

coating die surface (see, for example, Fig 1 and Fig 3, and [0020-0023]). But Nakamura does not explicitly teach wherein the thickness data collected is a cross machine direction thickness profile. Arai teaches a method of applying a continuous coating onto a web material wherein the thickness is measured and a feedback mechanism is present to correct for deviations in thickness (See, for example, abstract, and Fig 1-4). Arai teaches that it is well known in the art that deviations in coating thickness in a cross machine direction occur and that overall coating uniformity and functionality can be improved by monitoring such cross machine direction thickness profiles (see, for example, [0009-0052], Fig 1-2). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have determined a cross machine direction thickness profile as the thickness data gathered and based on controlling in the method of Nakamura as such data would provide form more uniform surfaces/ resulting properties and greater control over the deposited film.

Nakamura has explicitly taught that the feeding of each separate coating material is controlled based on the feedback loop from the thickness measurements (Fig 1-5, and [0020-0027]) but they do not explicitly teach wherein a cross machine direction thickness profile of each coating layer is determined and used as the basis for control of each coating feed rate and ultimate thickness. Chino teaches a method of applying a plurality of layers to a continuously running web substrate (see, for example, Fig 1, abstract). Chino further teaches that it is known and desirable in the art to control the thickness of each coating within a coating stack of a multilayered coating, and that it is desirable to monitor and determine the coating thickness of each layer of the multilayer

to ensure proper film properties (see, for example, col 1 line 1 - col 2 line 50). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have determined a cross machine direction thickness profile for each layer of the coating as the thickness data gathered and based on to control the thickness and feed rate of each layer of the coating in the method of Nakamura in view of Arai as such data would provide form more uniform surfaces and subsurfaces resulting in more predictable layer properties and greater control over the deposited film.

Arai has further taught manipulating an element (19) along a cross machine direction whereby the effective area of the flow path of the fed coating is altered to achieve a selected cross machine direction thickness profile for at least one coating material (see, for example, Fig 3, and [0051-0055]). But none of Nakamura, Arai, or Chino explicitly teach the element being manipulated modifies an effective area of a flow channel at each of a multiple of points in the cross direction between the corresponding feed chamber and feed slot resides with a plurality of cross machine direction arrayed feed holes which form the flow channels and which communicate between said at least one feed chamber and the nozzle slot whereby the effective area of the feed holes is adjusted to achieve the selected cross machine direction thickness profile. Okada teaches a method of applying a coating to continuous web surface via a die fed coating supply system (see, for example, Fig 8). Okada further teaches enhancing the regulation of applied coated area by incorporating a plurality of cross machine direction feed holes (80) which communicate between a feed chamber (76) and a nozzle slot (74) and wherein the flow through the plurality of feed holes is

manipulated by an element (82) disposed in each of the plurality of feed holes (see, for example, Fig 8, abstract, [0009-0012], and [0048-0052]). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated manipulating an element that modifies an effective area of a flow channel at each of a multiple of points in the cross direction between the corresponding feed chamber and feed slot resides with a plurality of cross machine direction feed holes which communicate between a feed chamber and a nozzle slot and wherein the flow through the plurality of feed holes is manipulated by an element disposed in each of the plurality of feed holes to control the selected thickness profile into the feed paths of each layer of plurality of layers in method of Nakamura in view of Arai and Chino as such an incorporation would enhance the regulation of each layer of the applied coating material to specific areas and specific amounts.

Nakamura does not explicitly teach the step of trickling the plurality of superpositioned layers from the feeding lip of the nozzle beam in the form of a coating curtain onto the surface of the web. Kondo further teaches that it is well known in the art for coating dies comprising a plurality of feed slots to flow a plurality of coating layers down a nozzle beam to form a coating curtain that is tricked from the die feed lip onto a the surface of a web (See, for example, Fig 1). As dies similar to those taught by Nakamura in view of Arai, Chino, and Okada are known in the art to predictably deposit multilayered coatings onto webs by trickling a plurality of superpositioned layers from the feeding lip as a curtain, it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated the method of Nakamura in view of Arai,

Chino, and Okada with Kondo, as such an incorporation would provide for enhanced regulation of multilayered coatings applied as trickled curtain coated layers from multislot dies.

Claim 14: Nakamura in view of Arai, Chino, Okada and Kondo teach the method of claim 11 directed to determining the cross machine direction thickness of each of said plurality of layers (described above) wherein Nakamura further teaches that thickness measurements obtained by at least one sensor making a non-contact measurement of thickness (see, for example, via a light interference method, [0029-0034], Fig 6-12).

Claim 15: Nakamura in view of Arai, Chino, Okada and Kondo teach the method of claims 14 (described above) wherein Nakamura has taught moving at least one sensor in a cross machine direction along a nozzle beam corresponding to the flow plane (see, for example, for example, Fig 1 and Fig 3, and [0020-0023]) and wherein Arai has taught where along such movement a cross machine thickness profile can be gathered, essentially across the entire width (see, for example, Fig 1, [0047]).

Claim 18: Nakamura in view of Arai, Chino, Okada and Kondo have taught the method of claim 17 directed to manipulating the feed rate of each layer (described above) wherein Okada further teaches the coating material flowing between the feed chamber (76) and the nozzle slot (74) flows though at least one equalizing chamber (78), which extends in the cross machine direction (crosswise of the web F) and into which equalizing chamber the feed holes (80) open (see, for example, Fig 8, and [0048-0052]). As each layer comprises a separate feed chamber, and nozzle slot, each would further comprise an equalizing chamber.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Arai, Chino, Okada and Kondo as applied to claim 11 above, and further in view of Kustermann (US patent 6,248,174; hereafter Kustermann).

Claim 13 : Nakamura in view of Arai, Chino, Okada and Kondo have taught the method of claim 11 (described above) but neither explicitly teaches wherein the step of controlling further comprises increasing or decreasing a by-pass flow of the coating material through the first / second feed chamber. Kustermann teaches a method of applying a coating onto a continuous web from a nozzle slot coater (see, for example, abstract, and Fig 1). Kustermann further teaches that a feed chamber (distribution channel (24) can comprise a by-pass flow (flow through exit discharge opening (32)) to ensure the coating medium is moving in the distribution channel and as a predictable means of regulating and varying the amount of coating material being distributed to the web (See, for example, col 4 lines 9-22, and col 5 lines 15 - 35). As both Kustermann and Nakamura in view of Arai, Chino, Okada and Kondo have taught methods of regulating the flow of coating in a continuous deposition process it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated increasing or decreasing a bypass flow of the coating material through each respective feed chamber in the method of Nakamura in view of Arai, Chino, Okada and Kondo in order to achieve the predictable result of regulating the flow of each of the layers of the coating material and additionally ensuring that each of the layers of coating medium is moving in each of the distribution channels (feed chambers).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Arai, Chino, Okada and Kondo as applied to claim 11 above, and further in view of Yapel et al (US patent 5,837,324; hereafter Yapel).

Claim 16 : Nakamura in view of Arai, Chino, Okada and Kondo have taught the method of claim 11 involving the step of determining the cross machine direction thickness profile of each layer of a multilayer coating as it flows in the machine direction along the flow plane (described above) and Kondo further teaches a continuous curtain coating method onto a moving web (See, for example, abstract, Fig 1) and that maintaining a uniform evenness along the lateral coating direction is a well known concern in the prior art that deviations in coating thickness can be linked to deviations in flow speed (See, for example, col 1 line 25- col 2 line 45). Kondo further teaches that it is well known in the art to measure surface speed of a flowing coating along its width to monitor the coating flow properties and lateral thickness uniformity (see, for example, col 7 lines 1 - 65) but none explicitly teach accomplishing the determination of cross machine direction thickness profile by measuring the surface speed of the layer of coating material. Yapel teaches a continuous coating method (die / slide /curtain) onto moving substrates (see, for example, abstract, col 1 lines 1 - 15). Yapel further teaches that it is well known in the art to collect thickness profiles (depth profiles), and further teaches wherein both devices as well as analytical or numerical methods, such as using fluid flow modeling such as FIDAP or NEKTON, are well known in the art and predictable methods of obtaining thickness profiles (see, for example, col 9 line 60 - col

10 line 13). As Nakamura in view of Arai, Chino, Okada and Kondo and Yapel teach methods of measuring and controlling coating thickness in slot fed curtain coating methods, it would have been obvious to one of ordinary skill in the art at the time of invention to substitute one method for the other (determining the cross machine direction thickness profile by measuring a surface speed of a coating layer followed by analytical / numerical manipulation) to achieve the predictable result of determining the cross machine direction thickness profile.

Response to Arguments

Applicant's arguments filed 12/3/09 have been fully considered but they are not persuasive.

Applicant's arguments that the references do not teach the newly added limitations are unconvincing in view of newly combined Chino, and Kondo; and Chino, Okada and Kondo references into independent claims 19 and 11 respectively, as discussed above.

In response to applicant's argument that "Nakamura does not employ a curtain coater where the coating material falls in a curtain, and does not suggest adjusting the thickness of the coating layers in the cross machine direction" (pg 7 of remarks) the examiner asserts that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). With regards to the falling curtain argument, the

examiner has incorporated the teach of Kondo into the independent claims demonstrating that similar coating dies as those taught by Nakamura are well known in the art to apply multilayer coatings via a falling curtain. And further that such control / feedback methods of Nakamura et al would similarly provide enhanced control / reproducibility to falling curtain coaters with similar coating dies systems. With regard to adjusting the thickness of the coating layers in the cross machine direction, such teaching is provided by secondary references Arai and Okada as discussed in the rejections above.

In response to applicant's argument that "Nakamura and Chino do not suggest measuring a cross machine direction profile in each or any layer, nor show a mechanism by which a cross machine direction profile might be adjusted in each of the layers" (pg 8 of remarks), the examiner asserts that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Examiner agrees with the applicant that Arai does teach cross machine direction measuring and profiling (pg 8 of remarks). Further the examiner asserts that Chino has taught that it is desirable to monitor and determine the coating thickness of each layer within a multilayer coating, and wherein thicknesses of distinct layers within mulitcomponent coatings can be determined by subtraction (see, for example, col 2 lines 45 - 50). Further Nakamura has taught a sensor capable of determining the thickness of underlying layers that can be moved across and along the entirety of the flow plane. Taking the teaching of the

references as a whole: there exists desirability of monitoring and controlling layer thickness profile, the desirability to determine and control thicknesses of each layer of a multilayer stack, and the teaching to a thickness sensor capable of collecting thickness data from points along and across the entirety of a flow plane; as such, a combination of such references would support measuring the cross machine direction profile of any or all layers as well as the desire to control such thicknesses.

In response to applicant's argument that "there is no suggestion or discussion of using the control structures of Okada for any purpose except to control the width of the coating" (pg 9 of remarks) the examiner asserts that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Arai has taught manipulating an element (19) along a cross machine direction whereby the effective area of the flow path of the fed coating is altered to achieve a selected cross machine direction thickness profile for at least one coating material (see, for example, Fig 3, and [0051-0055]). Okada has taught enhancing the regulation of applied coated area by incorporating a plurality of cross machine direction feed holes (80) which communicate between a feed chamber (76) and a nozzle slot (74) and wherein the flow through the plurality of feed holes is manipulated by an element (82) disposed in each of the plurality of feed holes (see, for example, Fig 8, abstract, [0009-0012], and [0048-0052]). By incorporating a series of distinct adjusting elements one of ordinary skill in the art would appreciate that gains in overall control of thickness are improved.

Further with respect to arguments that Okada, and Kustermann references are only directed to coatings of applying singular layers (pg 9 of remarks), the examiner asserts that the coating die of Nakamura is basically a grouping of separated coating dies with separate feeds and nozzles sharing a flow plane, as such the examiner asserts that one of ordinary skill in the art would appreciate that the benefits taught by Okada and Kustermann to die feed supply systems would be achieved by incorporating such controlling means to each and every separate feed supply making up the multilayer coating die of Nakamura.

In response to applicants arguments directed to claims 16 and 23 the examiner asserts that the prior art has explicitly taught that maintaining a uniform evenness along the lateral coating direction is a well known concern in the prior art that deviations in coating thickness can be linked to deviations in flow speed (See, for example, Kondo col 1 line 25- col 2 line 45). Kondo further teaches that it is well known in the art to measure surface speed of a flowing coating along its width to monitor the coating flow properties and lateral thickness uniformity (see, for example, col 7 lines 1 - 65) Yapel further teaches that it is well known in the art to collect thickness profiles (depth profiles), and further teaches wherein both devices as well as analytical or numerical methods, such as using fluid flow modeling such as FIDAP or NEKTON, are well known in the art and predictable methods of obtaining thickness profiles (see, for example, col 9 line 60 - col 10 line 13). The examiner asserts that such a teaching is sufficient to satisfy the applicant's limitation to measuring surface speed.

As to the remaining dependent claims, they remain rejected as no separate arguments are provided.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN H. EMPIE whose telephone number is (571)270-1886. The examiner can normally be reached on M-F, 7:00- 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on (571) 272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. H. E./
Examiner, Art Unit 1792

/Michael Cleveland/
Supervisory Patent Examiner, Art Unit 1792